



WASHINGTON STATE DEPARTMENT OF
Natural Resources

**Mass Wasting Assessment of non-federal lands:
Landslide Hazard Zonation Project
Memorandum**

Middle Cascade Watershed, Skagit County, Washington

Prepared by:

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The Middle Cascade Watershed Analysis Unit (WAU) incorporates the middle section of the Cascade River, a tributary to the Skagit River, in eastern Skagit County. The 71.5 mi² (45,769 acre) Middle Cascade WAU is comprised almost entirely of three federal land packages: North Cascades National Park, Mount Baker—Snoqualmie National Forest, and the Glacier Peak Wilderness. A single 29.2-acre parcel of private land is located within Section 16, Township 35 North, Range 12 East. This is the only non-federal land located within the WAU. This memorandum is intended to substitute for the standard Landslide Hazard Zonation Project Level II Assessment due to the miniscule percentage of non-federal forestland within the Middle Cascade WAU.

The 29.2 acres of private land are located within the center of the Cascade River valley (figure 1). Late Holocene alluvial deposits of the Cascade River and Sibley Creek underlie the entire study site. The mean elevation of the study site is 1,006 feet above sea level, with a maximum topographic differential of 70 feet. The mean slope of the study site is 6 percent, reaching a maximum of 43 percent in the northeast corner of the parcel. Modeled potential expected slope instability (Vagueois, 2000) indicates that only the extreme northeast corner of the parcel is subject to moderate potential slope instability (figure 2).

Available geology, topography, soils, and hydrology information was reviewed for the assessment area. Due to a lack of photo coverage in the Department of Natural Resources (DNR) collection, only the 2001 1:12,000-scale and 1998 digital orthophotos were examined for mass wasting features. The 2001 photographs were viewed with a mirrored stereoscope with 3x magnification. No mass wasting features were identified within the assessment area (Map A-1). However, the eastern portion of the study area may be subjected to rapid deposition of sediment, as it is located upon the Sibley Creek alluvial fan.

Due to the paucity of mass wasting features and the lack of significant topographic gradient across the study site, a single Mass Wasting Map Unit (MWMU1) was created to include all 29.2 acres of alluvial valley bottom, characteristic of the study site (Map A-2). MWMU1 is rated as having a Low hazard for mass wasting and sediment delivery. The overall hazard potential rating for the study site is low. The analyst's confidence level in this determination is high.

References Cited

Vagueois, Laura, 2000, Creation of a slope stability screening tool from landslide prediction models, Forest Practice Board Presentation: Washington Department of Natural Resources, Olympia, Washington.

Appendix Maps A-1, A-2

Post script: Due to the nature of having no landslides and exclusively a single low hazard landform within the area of interest, Maps for this area were not created and are not a part of this assessment, beyond the map found below (Figure 2).

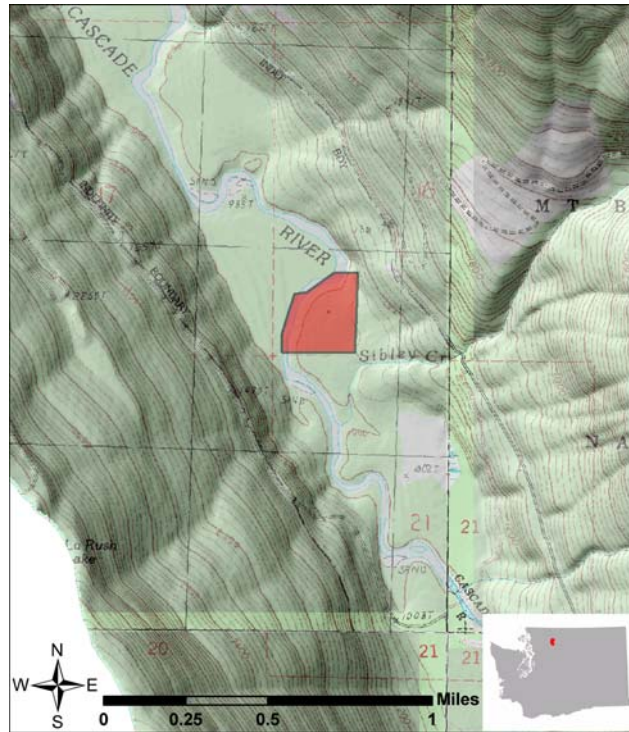


Figure 1. Location map of 29.2-acre study parcel within the Middle Cascade WAU. The study site is the red polygon.

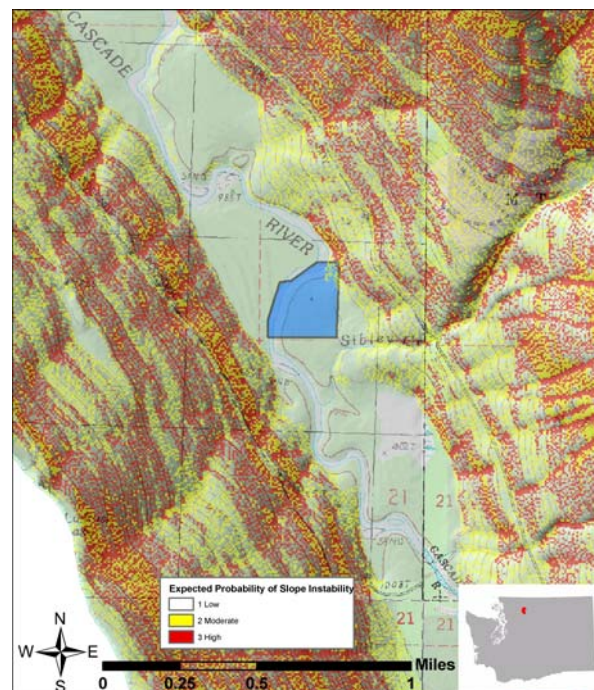


Figure 2. Modeled expected probability of slope instability for a portion of the Middle Cascade WAU. The study site is the blue polygon.